BEFORE THE

POLLUTION CONTROL HEARINGS BOARD

STATE OF WASHINGTON

IN THE MATTER OF WEYERHAEUSER COMPANY, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	Proposed PCHB No. 452 FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

This appeal by Weyerhaeuser Company (herein appellant) came on for hearing before Board member W. A. Gissberg at the office of the Board in Lacey, Washington, on February 13, 14 and 25, 1974.

Appellant was represented by its attorneys, Lane, Powell, Moss & Miller, G. Keith Grim and Robert R. Davis, Jr. Respondent was represented by Charles W. Lean, Assistant Attorney General. The Board having heard the testimony or read the transcript, reviewed the exhibits and considered the written arguments of counsel now makes and enters the following

FINDINGS OF FACT

1. Since 1952, appellant has operated a kraft pulp mill on the Snohomish River at Everett, Washington. This mill produces a wide variety of kraft pulp grades through conventional kraft pulping

methods. Its products include news pulp, fine papers pulp, hardwood and fluff pulp. The mill operates an average of 325 days per year. If appellant limited its production to fluff grades and operated at a maximum capacity, the mill could produce 400 tons per day or 130,000 tons per year. If it produced exclusively hardwood grades and operated at maximum capacity, the mill could produce 500 tons per day or 162,500 tons per year. Selection of pulp grade and rate of pulp production varies greatly, but, in 1973, the mill produced a total of 143,000 tons of pulp of various grades.

2. In alkaline or kraft pulping at Everett, wood chips are cooked in batch digesters in an alkaline chemical solution composed principally of sodium hydroxide and other sodium and sulfur compounds. Heat and pressure are applied to the digesters, and the wood chips are cooked into pulp fibers, dissolved lignin, and other organic constituents. Upon completion of the digester cook the pulp fibers--about 45% of the original chip material--are removed for further processing into commercial products. The lignin and pulping chemicals are collected, concentrated and fed into recovery furnaces (or boilers). The boilers burn the lignin and reduce the sodium and sulfur compounds which, after further treatment, are reconstituted into alkaline pulping solution and fed back into the batch digesters.

3. Sulfur compounds used in the alkaline pulping solution form malodorous gases, the major components of which are hydrogen sulfide, methyl mercaptan, dimethyl sulfide and dimethyl disulfide. Each compound has its own characteristic odor, and all are objectionable to human smell. Of these odors, the most well-known is hydrogen sulfid

which has a "rotten egg" smell. While high concentrations of these compounds may prove lethal, ambient level in the vicinity of most modern kraft mills, such as appellant's Everett facility, are only disagreeable to smell. The human nose can detect hydrogen sulfide and methyl mercaptan in levels of one part per billion - an extremely small concentration. A reduction of these gas emissions does not produce a proportional reduction in smell. Even if a source reduces emissions of these odors by 90%, the nose will only sense a 50% reduction.

4. Kraft odor is measured in terms of total reduced sulfur (TRS). The Department of Ecology seeks to regulate and reduce this odor by limiting TRS from the stacks of the kraft recovery boiler. WAC 18-36-030(3) requires that by July 1975, all kraft mills must reduce TRS levels from their recovery boilers to 17 1/2 ppm or one-half pound per ton of pulp produced.

5. Low odor - no direct contact evaporator recovery furnaces offer one solution to attain the 17 1/2 ppm limitation. Here, exhaust gases from the boiler do not concentrate the lignin and spent chemicals, and thus these gases do not pick up the malodorous sulfur compounds. The small amounts of TRS which do escape from low odor boilers (about 5 ppm) result from incomplete combustion in the boilers. Appellant is installing such a boiler at its Everett facility for which it has received tax credits under Chapter 82.34 RCW. When operating in conjunction with the existing boiler, this new recovery boiler should reduce the TRS to the required level. The Everett kraft mill will then satisfy all existing air pollution control requirements.

Obviously, respondent cannot guarantee that the existing TRS limits will not be reduced to lower levels at some future time.

6. Stack emissions of TRS from recovery boilers are not the only source of kraft odors, although they are the principal and the most easily measured source. These odors also emanate from the batch digesters, washers, knotters, blow tanks, evaporator condensate, lime kiln and aeration lagoons. It is estimated that for each ton of kraft pulp produced, approximately one pound of TRS is emitted from these nonpoint sources. As a result, even if a low odor boiler is installed, persons living in the vicinity of a kraft mill will continue to smell the objectionable odors, although the frequency of occurrence and the radius of the odor will be reduced.

7. Respondent still receives complaints about kraft odor from residents in the vicinity of two plants where low odor boilers are currently in operation--Crown Zellerbach at Port Townsend and St. Regis in Tacoma. Appellant has no reason to believe it will have a different experience after its low odor boiler starts operation since residences are located on a hill adjacent to and just above the south boundary of the plant.

8. Appellant proposes to modify its pulping procedures and chemicals employed at its Everett facility to eliminate the sulfur compounds causing the objectionable odor. The new process, called soda oxygen alkaline pulping or SOAP, will use sodium hydroxide and oxygen in a two-stage cook instead of sodium hydroxide and sulfur compounds now used in the single-stage cook in the batch digesters. In the SOAP process, wood chips will be fed continuously in a Kamyr

digester where sodium hydroxide will attack the wood and dissolve about 50% of the material in the chips, mainly lignin. The fibrous pulp mass then proceeds through refiners and a cylinder mold to a second state pulping chamber where oxygen will remove excess lignin to attain a fiber yield of 45% of the original chip material - approximately that percent removal now achieved at Everett.

9. SOAP pulp will have slightly lower tear and bursting strengths than present grades of kraft pulp, but in all other respects it should be comparable. If not, then SOAP will have failed, for appellant cannot produce and sell pulp grades which are not acceptable to its customers.

10. SOAP pulp will be sold in the same grades and same markets as kraft pulp. Total production capacity will remain the same, though annual operating expenses for the SOAP process will exceed the present kraft process operating expenses by about $750,000.

11. Regardless of the controls installed on the kraft process, residents near a kraft pulp mill will continue to smell malodorous kraft odors. Because no sulfur will be utilized in the SOAP process, there will be no kraft odor.

12. Appellant intends to invest at Everett approximately $11,370,000 on SOAP and incur the additional annual operating expense to attempt to eliminate the kraft odor. If the attempt proves successful, the feasibility of the process will be established for application in other existing kraft pulp mills or in new pulp mills.

13. The SOAP facility will be run by appellant's research and development branch, but the pulp produced will be sold on the market.

Appellant will also be testing other new processes at its Everett facility which are not covered by applications for pollution control tax exemptions and credits.

14. Appellant has selected Everett for the installation of SOAP because of a number of reasons unrelated to pollution control, among which was because it has research and development capability there, and residences lie in close proximity to the present mill. The SOAP process will not be designed and operated primarily for the purposes of pollution control.

15. The new recovery boiler to be installed at appellant's Everett kraft mill, for which appellant has previously received a tax exemption under chapter 82.34 RCW, will satisfy the existing TRS limitations of respondent's regulations. If SOAP succeeds, this new recovery boile. will no longer be performing the pollution control function of removing TRS, since there will be no TRS generated by the SOAP process.

16. The regulations governing air emission from appellant's Everett kraft mill (chapter 18-36 WAC) became effective July 18, 1969, and the applicable compliance schedule shortly thereafter. Appellant, on June 22, 1970, submitted tax credit application No. 641 for the mill. This application eventually covered the new recovery boiler for the mill, which was approved for tax exemption and credit. Application No. 641 was amended over the date of June 5, 1973 to include the SOAP facility for the first time. Appellant timely filed for a pollution control tax exemption and credit for the SOAP facility, all of which was denied by respondent except the lime kiln scrubbers estimated to cost $66,000.

17. SOAP was not proposed in response to any specific requirements of respondent.

18. Any conclusion of law hereinafter deemed to be a Finding of Fact is herewith adopted as same.

From the foregoing Findings and Fact, the Board makes the following:

CONCLUSIONS OF LAW

1. Appellant's proposed facility at Everett is an experimental facility designed to test the feasibility of soda oxygen alkaline pulping. It is not designed, nor will it be operated primarily for the purposes of the control, capture, and removal of pollutants, as is required for approval under RCW 83.34.030.

2. Appellant's proposed facility at Everett is not proposed in response to a specific requirement of a control agency. It is thus not eligible for a certificate under RCW 82.34.010(5).

3. Appellant's SOAP facility does not qualify for the tax exemption and credit provided by Chapter 82.34 RCW.

From the foregoing, the Board makes the following:

ORDER

The decision of the Department of Ecology to deny approval to appellant's application for a certificate under Chapter 82.34 RCW, for the SOAP facility at Everett (with the exception of the lime kiln scrubbers, which were approved) is in all respects affirmed.

DONE at Lacey, Washington this 21st day of February, 1974.

POLLUTION CONTROL HEARINGS BOARD

Walt Woodward

Walt Woodward, ~~Chairman~~ member

W. A. Gissberg

W. A. Gissberg, Member